

SEQUENCE LISTING

<110> Wang, Chang Yi
Walfield, Alan M.

<120> PEPTIDE COMPOSITION AS IMMUNOGEN FOR THE TREATMENT OF
ALLERGY

<130> 1151-4153US2

<150> 09/701,623

<151> 2000-12-01

<150> PCT/US99/13959

<151> 1999-06-21

<150> 09/100,287

<151> 1998-06-20

<160> 91

<170> PatentIn Ver. 2.1

<210> 1

<211> 325

<212> PRT

<213> HUMAN

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<223> CH2CH3 of human IgE

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<301> Dorrington,
Bennich,

<303> Immunology

<304> 41

<306> 3-25

<307> 1978

<400> 1

Val Cys Ser Arg Asp Phe Thr Pro Pro Thr Val Lys Ile Leu Gln Ser
1 5 10 15

Ser Cys Asp Gly Gly Gly His Phe Pro Pro Thr Ile Gln Leu Leu Cys
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Leu Val Ser Gly Tyr Thr Pro Gly Thr Ile Asn Ile Thr Trp Leu Glu
35 40 45

Asp Gly Gln Val Met Asp Val Asp Leu Ser Thr Ala Ser Thr Thr Gln
50 55 60

Glu Gly Glu Leu Ala Ser Thr Gln Ser Glu Leu Thr Leu Ser Gln Lys
65 70 75 80

His Trp Leu Ser Asp Arg Thr Tyr Thr Cys Gln Val Thr Tyr Gln Gly
85 90 95

His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn Pro Arg
100 105 110

Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile
 115 120 125
 Arg Lys Ser Pro Thr Ile Thr Cys Leu Val Val Asp Leu Ala Pro Ser
 130 135 140
 Lys Gly Thr Val Asn Leu Thr Trp Ser Arg Ala Ser Gly Lys Pro Val
 145 150 155 160
 Asn His Ser Thr Arg Lys Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr
 165 170 175
 Val Thr Ser Thr Leu Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu
 180 185 190
 Thr Tyr Gln Cys Arg Val Thr His Pro His Leu Pro Arg Ala Leu Met
 195 200 205
 Arg Ser Thr Thr Lys Thr Ser Gly Pro Arg Ala Ala Pro Glu Val Tyr
 210 215 220
 Ala Phe Ala Thr Pro Glu Trp Pro Gly Ser Arg Asp Lys Arg Thr Leu
 225 230 235 240
 Ala Cys Leu Ile Gln Asn Phe Met Pro Glu Asp Ile Ser Val Gln Trp
 245 250 255
 Leu His Asn Glu Val Gln Leu Pro Asp Ala Arg His Ser Thr Thr Gln
 260 265 270
 Pro Arg Lys Thr Lys Gly Ser Gly Phe Phe Val Phe Ser Arg Leu Glu
 275 280 285
 Val Thr Arg Ala Glu Trp Gln Glu Lys Asp Glu Phe Ile Cys Arg Ala
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 Val His Glu Ala Ala Ser Pro Ser Gln Thr Val Gln Arg Ala Val Ser
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 Val Asn Pro Gly Lys
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<300>
 <301> Patel,
 <303> Immunogenetics
 <304> 41
 <306> 282-286
 <307> 1995

<400> 2
 Ala Cys Ala Leu Asn Phe Ile Pro Pro Thr Val Lys Leu Phe His Ser
 1 5 10 15

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| Ser | Cys | Asn | Pro | Val | Gly | Asp | Thr | His | Thr | Thr | Ile | Gln | Leu | Leu | Cys | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Leu | Ile | Ser | Gly | Tyr | Val | Pro | Gly | Asp | Met | Glu | Val | Ile | Trp | Leu | Val | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Asp | Gly | Gln | Lys | Ala | Thr | Asn | Ile | Phe | Pro | Tyr | Thr | Ala | Pro | Gly | Thr | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Lys | Glu | Gly | Asn | Val | Thr | Ser | Thr | His | Ser | Glu | Leu | Asn | Ile | Thr | Gln | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Gly | Glu | Trp | Val | Ser | Gln | Lys | Thr | Tyr | Thr | Cys | Gln | Gly | Phe | Thr | Phe | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Lys | Asp | Glu | Ala | Arg | Lys | Cys | Ser | Glu | Ser | Asp | Pro | Arg | Gly | Val | Thr | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ser | Tyr | Leu | Ser | Pro | Pro | Ser | Pro | Leu | Asp | Leu | Tyr | Val | His | Lys | Ala | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Pro | Lys | Ile | Thr | Cys | Leu | Val | Val | Asp | Leu | Ala | Thr | Met | Glu | Gly | Met | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Asn | Leu | Thr | Trp | Tyr | Arg | Glu | Ser | Lys | Glu | Pro | Val | Asn | Pro | Gly | Pro | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Leu | Asn | Lys | Lys | Asp | His | Phe | Asn | Gly | Thr | Ile | Thr | Val | Thr | Ser | Thr | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Leu | Pro | Val | Asn | Thr | Asn | Asp | Trp | Ile | Glu | Gly | Glu | Thr | Tyr | Tyr | Cys | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Arg | Val | Thr | His | Pro | His | Leu | Pro | Lys | Asp | Ile | Val | Arg | Ser | Ile | Ala | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Lys | Ala | Pro | Gly | Lys | Arg | Ala | Pro | Pro | Asp | Val | Tyr | Leu | Phe | Leu | Pro | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Pro | Glu | Glu | Glu | Gln | Gly | Thr | Lys | Asp | Arg | Val | Thr | Leu | Thr | Cys | Leu | |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 | |
| Ile | Gln | Asn | Phe | Phe | Pro | Ala | Asp | Ile | Ser | Val | Gln | Trp | Leu | Arg | Asn | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Asp | Ser | Pro | Ile | Gln | Thr | Asp | Gln | Tyr | Thr | Thr | Thr | Gly | Pro | His | Lys | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Val | Ser | Gly | Ser | Arg | Pro | Ala | Phe | Phe | Ile | Phe | Ser | Arg | Leu | Glu | Val | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Ser | Arg | Val | Asp | Trp | Glu | Gln | Lys | Asn | Lys | Phe | Thr | Cys | Gln | Val | Val | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| His | Glu | Ala | Leu | Ser | Gly | Ser | Arg | | | | | | | | | |
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<223> CH2CH3 of rat IgE

<300>
<301> Dorrington,
Bennich,
<303> Immunology
<304> 41
<306> 3-25
<307> 1978

<300>
<301> Patel,
<303> Immunogenetics
<304> 41
<306> 282-286
<307> 1995

<300>
<301> Steen,
<303> J. Mol. Biol.
<304> 177
<306> 19-32
<307> 1984

<300>
<301> Ishida,
<303> EMBO J.
<304> 1
<306> 1117-1123
<307> 1982

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Ala Arg Pro Val Asn Ile Thr Lys Pro Thr Val Asp Leu Leu His Ser
1 5 10 15
Ser Cys Asp Pro Asn Ala Phe His Ser Thr Ile Gln Leu Tyr Cys Phe
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Val Tyr Gly His Ile Gln Asn Asp Val Ser Ile His Trp Leu Met Asp
35 40 45
Asp Arg Lys Ile Tyr Asp Thr His Ala Gln Asn Val Leu Ile Lys Glu
50 55 60
Glu Gly Lys Leu Ala Ser Thr Tyr Ser Arg Leu Asn Ile Thr Gln Gln
65 70 75 80
Gln Trp Met Ser Glu Ser Thr Phe Thr Cys Lys Val Thr Ser Gln Gly
85 90 95
Glu Asn Tyr Trp Ala His Thr Arg Arg Cys Ser Asp Asp Glu Pro Arg
100 105 110
Gly Val Ile Thr Tyr Leu Ile Pro Pro Ser Pro Leu Asp Leu Tyr Glu
115 120 125
Asn Gly Thr Pro Lys Leu Thr Cys Leu Val Leu Asp Leu Glu Ser Glu

| 130 | | 135 | | 140 | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Glu | Asn | Ile | Thr | Val | Thr | Trp | Val | Arg | Glu | Arg | Lys | Lys | Ser | Ile | Gly | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Ser | Ala | Ser | Gln | Arg | Ser | Thr | Lys | His | His | Asn | Ala | Thr | Thr | Ser | Ile | | |
| | | | 165 | | | | | | 170 | | | | | 175 | | | |
| Thr | Ser | Ile | Leu | Pro | Val | Asp | Ala | Lys | Asp | Trp | Ile | Glu | Gly | Glu | Gly | | |
| | | 180 | | | | | | 185 | | | | | 190 | | | | |
| Tyr | Gln | Cys | Arg | Val | Asp | His | Pro | His | Phe | Pro | Lys | Pro | Ile | Val | Arg | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | |
| Ser | Ile | Thr | Lys | Ala | Leu | Gly | Leu | Arg | Ser | Ala | Pro | Glu | Val | Tyr | Val | | |
| 210 | | | | | | 215 | | | | | 220 | | | | | | |
| Phe | Leu | Pro | Pro | Glu | Glu | Glu | Glu | Lys | Asn | Lys | Arg | Thr | Leu | Thr | Cys | | |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 | | |
| Leu | Ile | Gln | Asn | Phe | Phe | Pro | Glu | Asp | Ile | Ser | Val | Gln | Trp | Leu | Gln | | |
| | | | 245 | | | | | | 250 | | | | | 255 | | | |
| Asp | Ser | Lys | Leu | Ile | Pro | Lys | Ser | Gln | His | Ser | Thr | Thr | Thr | Pro | Leu | | |
| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Lys | Thr | Asn | Gly | Ser | Asn | Gln | Arg | Phe | Phe | Ile | Phe | Ser | Arg | Leu | Glu | | |
| | 275 | | | | | 280 | | | | | | 285 | | | | | |
| Val | Thr | Lys | Ala | Leu | Trp | Thr | Gln | Thr | Lys | Gln | Phe | Thr | Cys | Arg | Val | | |
| 290 | | | | | | 295 | | | | | 300 | | | | | | |
| Ile | His | Glu | Ala | Leu | Arg | Glu | Pro | Arg | | | | | | | | | |
| 305 | | | | | 310 | | | | | | | | | | | | |

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 <211> 313
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<220>
 <223> CH2CH3 of mouse IgE

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| <400> 4 | | | | | | | | | | | | | | | | | |
| Val | Arg | Pro | Val | Thr | His | Ser | Leu | Ser | Pro | Pro | Trp | Ser | Tyr | Ser | Ile | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |
| His | Arg | Cys | Asp | Pro | Asn | Ala | Phe | His | Ser | Thr | Ile | Gln | Leu | Tyr | Cys | | |
| | | 20 | | | | | 25 | | | | | | 30 | | | | |
| Phe | Ile | Tyr | Gly | His | Ile | Leu | Asn | Asp | Val | Ser | Val | Ser | Trp | Leu | Met | | |
| | 35 | | | | | 40 | | | | | | 45 | | | | | |
| Asp | Asp | Arg | Glu | Ile | Thr | Asp | Thr | Leu | Ala | Gln | Thr | Val | Leu | Ile | Lys | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Glu | Glu | Gly | Lys | Leu | Ala | Ser | Thr | Cys | Ser | Lys | Leu | Asn | Ile | Thr | Glu | | |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 | | |
| Gln | Gln | Trp | Met | Ser | Glu | Ser | Thr | Phe | Thr | Cys | Arg | Val | Thr | Ser | Gln | | |

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<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 6
Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro Lys
1 5 10 15
Asp Ile Val Arg Ser Ile Ala Lys Cys
20 25

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<220>
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synthesized from amino acids with no genetic
material as source

<400> 7
Cys Gly Glu Gly Tyr Gln Ser Arg Val Asp His Pro His Phe Pro Lys
1 5 10 15
Pro Ile Val Arg Ser Ile Thr Lys Cys
20 25

<210> 8
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 8
Cys Gly Tyr Gly Tyr Gln Ser Ile Val Asp Arg Pro Asp Phe Pro Lys
1 5 10 15
Pro Ile Val Arg Ser Ile Thr Leu Cys
20 25

<210> 9
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<212> PRT
<213> Artificial Sequence

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synthesized from amino acids with no genetic
material as source

<400> 9

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr
1 5 10 15

Ile Asp

<210> 10

<211> 15

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<222> ()

<223> I, M, L

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<223> S, T

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<223> G, T

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<223> H, T

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<223> K, R

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<223> I, M, L

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<400> 10
Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa Glu Xaa Xaa
1 5 10 15

<210> 11
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synthesized from amino acids with no genetic
material as source

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<223> K, R

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<223> G, T

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<223> I, M, L

<220>
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<222> (16)
<223> G, T

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<222> (17)
<223> I, M, L

<400> 11
Ile Ser Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa Glu Xaa
1 5 10 15
Xaa Leu Phe

<210> 12
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synthesized from amino acids with no genetic
material as source

<400> 12
Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu
1 5 10

<210> 13
<211> 16
<212> PRT
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<220>
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synthesized from amino acids with no genetic
material as source

<400> 13
Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala Thr Tyr Gln Phe
1 5 10 15

<210> 14
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<212> PRT
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synthesized from amino acids with no genetic
material as source

<400> 14
Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr
1 5 10 15
Ile Asp Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro

| | | | |
|-----|-----|-----|-----|
| | 20 | 25 | 30 |
| His | Leu | Pro | Arg |
| | 35 | 40 | 45 |
| Ala | Leu | Met | Arg |
| | | | |
| Ser | Thr | Thr | Lys |
| | | | Cys |

<210> 15
 <211> 63
 <212> PRT
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 synthesized from amino acids with no genetic
 material as source

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | 15 | | | | | | | | | | | | | | | | | | |
| Thr | Ala | Lys | Ser | Lys | Lys | Phe | Pro | Ser | Tyr | Thr | Ala | Thr | Tyr | Gln | Phe | | | | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | | | | |
| Gly | Gly | Lys | Lys | Lys | Ile | Ile | Thr | Ile | Thr | Arg | Ile | Ile | Thr | Ile | Ile | | | | |
| | | 20 | | | | | 25 | | | | | | 30 | | | | | | |
| Thr | Thr | Ile | Asp | Gly | Gly | Cys | Gly | Glu | Thr | Tyr | Gln | Ser | Arg | Val | Thr | | | | |
| | | 35 | | | | | 40 | | | | | | 45 | | | | | | |
| His | Pro | His | Leu | Pro | Arg | Ala | Leu | Met | Arg | Ser | Thr | Thr | Lys | Cys | | | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | | | |

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 Y, V

<220>
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 <222> (5)
 <223> A, R, N, D, C, Q, E , G, H, I, L, K, M, F, S, T,
 W, Y, V

| | |
|-----|-----|
| | 16 |
| Pro | Pro |
| | Xaa |
| Pro | Xaa |
| Pro | |
| 1 | 5 |

<210> 17
 <211> 59
 <212> PRT
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<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 17

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Gly Gly Lys Lys
1 5 10 15

Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr Ile Asp
20 25 30

Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His Leu
35 40 45

Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
50 55

<210> 18

<211> 46

<212> PRT

<213> Artificial Sequence

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synthesized from amino acids with no genetic
material as source

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<222> (4)

<223> S, T

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<223> K, R

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<222> (16)

<223> G, T

<400> 18

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu Xaa
1 5 10 15

Ile Leu Phe Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His
20 25 30

Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
35 40 45

<210> 19

<211> 63

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<222> (25)

<223> G, T

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<222> (33)

<223> G, T

<400> 19

Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala Thr Gln Phe Gly
1 5 10 15

Gly Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu
20 25 30

Xaa Ile Leu Phe Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr
35 40 45

His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys

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55

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 <222> (30)
 <223> G, T

<400> 20
 Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Gly Gly Ile Ser
 1 5 10 15
 Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu Xaa Ile Leu
 20 25 30
 Phe Gly Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His
 35 40 45
 Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
 50 55 60

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synthesized from amino acids with no genetic
material as source

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<223> S, T

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<223> K, R

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<223> G, T

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Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa Glu Xaa Xaa Gly
1 5 10 15
Gly Cys Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His Leu Pro
20 25 30
Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
35 40

<210> 22
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synthesized from amino acids with no genetic
material as source

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<223> I, M, L

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<223> G, T

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<222> (33)
<223> I, M, V

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Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Thr Ala Thr Tyr Gln Phe
1 5 10 15

Gly Gly Xaa Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa Glu Xaa

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 20 | | 25 | | 30 | | | | | | | | | | |
| Xaa | Gly | Gly | Cys | Gly | Glu | Thr | Tyr | Gln | Ser | Arg | Val | Thr | His | Pro | His |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Pro | Arg | Ala | Leu | Met | Arg | Ser | Thr | Thr | Lys | Cys | | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | |

<210> 23
 <211> 56
 <212> PRT
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<220>
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 synthesized from amino acids with no genetic
 material as source

<220>
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 <222> (15)
 <223> I, M, L

<220>
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 <222> (16)
 <223> S, T

<220>
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 <222> (19)
 <223> K, R

<220>
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 <222> (20)
 <223> G, T

<220>
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 <222> (24)
 <223> H, T

<220>
 <221> MOD_RES
 <222> (25)
 <223> K, R

<220>
 <221> MOD_RES
 <222> (26)
 <223> I, M, L

<220>
 <221> MOD_RES
 <222> (28)
 <223> G, T

<220>
 <221> MOD_RES

<222> (29)

<223> I, M, V

<400> 23

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Gly Gly Xaa Xaa
1 5 10 15

Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Xaa Glu Xaa Xaa Gly Gly Cys
20 25 30

Gly Glu Thr Tyr Gln Ser Arg Val Thr His Pro His Leu Pro Arg Ala
35 40 45

Leu Met Arg Ser Thr Thr Lys Cys
50 55

<210> 24

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<220>

<221> MOD_RES

<222> (4)

<223> S, T

<220>

<221> MOD_RES

<222> (7)

<223> K, R

<220>

<221> MOD_RES

<222> (8)

<223> G, T

<220>

<221> MOD_RES

<222> (12)

<223> H, T

<220>

<221> MOD_RES

<222> (13)

<223> K, R

<220>

<221> MOD_RES

<222> (16)

<223> G, T

<400> 24

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu Xaa
1 5 10 15

Ile Leu Phe Gly Gly Cys Gly Tyr Gly Tyr Gln Ser Ile Val Asp His
20 25 30

Pro Asp Phe Pro Lys Pro Ile Val Arg Ser Ile Thr Lys Cys
35 40 45

<210> 25

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 25

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr
1 5 10 15

Ile Asp Gly Gly Cys Gly Tyr Gly Tyr Gln Ser Ile Val Asp His Pro
20 25 30

Asp Phe Pro Lys Pro Ile Val Arg Ser Ile Thr Lys Cys
35 40 45

<210> 26

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 26

Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Thr
1 5 10 15

Ile Asp Gly Gly Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His Pro
20 25 30

His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys Cys
35 40 45

<210> 27

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<220>

<221> MOD_RES

<222> (1)
<223> I, M, L

<220>
<221> MOD_RES
<222> (2)
<223> S, T

<220>
<221> MOD_RES
<222> (7)
<223> K, L

<220>
<221> MOD_RES
<222> (8)
<223> G, R

<220>
<221> MOD_RES
<222> (9)
<223> V, T

<220>
<221> MOD_RES
<222> (10)
<223> I, V

<220>
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<222> (14)
<223> I, T

<220>
<221> MOD_RES
<222> (15)
<223> E, R

<220>
<221> MOD_RES
<222> (16)
<223> G, M

<220>
<221> MOD_RES
<222> (19)
<223> F, T

<220>
<221> MOD_RES
<222> (20)
<223> G, M

<400> 27
Xaa Xaa Ile Ser Glu Ile Xaa Gly Val Xaa Val His Lys Xaa Xaa Xaa
1 5 10 15

Ile Leu Xaa Xaa Gly Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His
20 25 30

Pro His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys Cys

35

40

45

<210> 28

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 28

Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
1 5 10 15

Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu
20 25 30

Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser
35 40 45

Arg

<210> 29

<211> 60

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 29

Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
1 5 10 15

Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
20 25 30

Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp Leu Ala
35 40 45

Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg
50 55 60

<210> 30

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 30
 Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
 1 5 10 15
 Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser
 20 25 30
 Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
 35 40 45
 Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg
 50 55 60

<210> 31
 <211> 76
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 31
 Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser Gln Val Thr Tyr
 1 5 10 15
 Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
 20 25 30
 Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
 35 40 45
 Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp Leu Ala
 50 55 60
 Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg
 65 70 75

<210> 32
 <211> 35
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 32
 Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro
 1 5 10 15
 Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu
 20 25 30

Val Val Asp
35

<210> 33
<211> 46
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 33
Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
1 5 10 15
Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
20 25 30
Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp
35 40 45

<210> 34
<211> 50
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 34
Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
1 5 10 15
Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser
20 25 30
Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val
35 40 45

Val Asp
50

<210> 35
<211> 62
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 35
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser Gln Val Thr Tyr

| | | | |
|---|----|----|----|
| 1 | 5 | 10 | 15 |
| Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn | 20 | 25 | 30 |
| Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu | 35 | 40 | 45 |
| Phe Ile Arg Lys Ser Pro Thr Ile Thr Ser Leu Val Val Asp | 50 | 55 | 60 |

<210> 36
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

| |
|---|
| <400> 36 |
| Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro |
| 1 5 10 15 |
| Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile |
| 20 25 |

<210> 37
 <211> 40
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

| |
|---|
| <400> 37 |
| Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn |
| 1 5 10 15 |
| Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu |
| 20 25 30 |
| Phe Ile Arg Lys Ser Pro Thr Ile |
| 35 40 |

<210> 38
 <211> 44
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 38

Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys
1 5 10 15

Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser
20 25 30

Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile
35 40

<210> 39

<211> 56

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 39

Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Ser Gln Val Thr Tyr
1 5 10 15

Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
20 25 30

Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
35 40 45

Phe Ile Arg Lys Ser Pro Thr Ile
50 55

<210> 40

<211> 76

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 40

Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Cys Gln Val Thr Tyr
1 5 10 15

Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
20 25 30

Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro Phe Asp Leu
35 40 45

Phe Ile Arg Lys Ser Pro Thr Ile Thr Cys Leu Val Val Asp Leu Ala
50 55 60

Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg
65 70 75

<210> 41
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 41
Cys Lys Gln Arg Asn Gly Thr Leu Thr Cys
1 5 10

<210> 42
<211> 45
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 42
Gln Lys His Trp Leu Ser Asp Arg Thr Tyr Thr Cys Gln Val Thr Tyr
1 5 10 15
Gln Gly His Thr Phe Glu Asp Ser Thr Lys Lys Cys Ala Asp Ser Asn
20 25 30
Pro Arg Gly Val Ser Ala Tyr Leu Ser Arg Pro Ser Pro
35 40 45

<210> 43
<211> 34
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 43
Cys Pro Ser Lys Gly Thr Val Asn Leu Thr Trp Ser Arg Ala Ser Gly
1 5 10 15
Lys Pro Val Asn His Ser Thr Arg Lys Glu Glu Lys Gln Arg Asn Gly
20 25 30
Thr Cys

<210> 44
<211> 33
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 44

Cys Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys
1 5 10 15

Arg Val Thr His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr
20 25 30

Cys

<210> 45

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 45

Ser Thr Thr Lys Thr Ser Gly Pro Arg Ala Ala Pro Glu Val
1 5 10

<210> 46

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 46

Cys Trp Ser Arg Ala Ser Gly Lys Pro Val Cys Asn His Ser
1 5 10

<210> 47

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 47

Cys Ser Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr
1 5 10 15

Ile Thr Cys

<210> 48
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 48
Cys Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Pro Cys
1 5 10

<210> 49
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 49
Cys Pro Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Pro Cys
1 5 10 15

<210> 50
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 50
Cys Lys Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Cys
1 5 10 15

<210> 51
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 51

Lys Glu Glu Lys Gln Arg Asn Gly
1 5

<210> 52
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 52
Cys Trp Ser Arg Ala Ser Gly Lys Pro Val Cys
1 5 10

<210> 53
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 53
Pro Thr Ile Thr Cys Leu Val Leu Asp Leu Ala Pro Ser Lys Gly Thr
1 5 10 15

Val Asn Leu Thr Cys
20

<210> 54
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 54
Pro Thr Ile Thr Cys Leu Val Leu Asp Leu Ala Pro Ser Lys Gly Thr
1 5 10 15

<210> 55
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 55

Thr Ser Thr Leu Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr
1 5 10 15

Tyr Gln Cys Arg Val Thr His Pro His
20 25

<210> 56

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 56

Pro Thr Ile Thr Ser Leu Val Leu Cys Leu Ala Pro Ser Lys Gly Cys
1 5 10 15

<210> 57

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 57

Cys Val Asn Leu Thr Trp Ser Arg Ala Ser Gly Lys Pro Val Asn His
1 5 10 15

Ser Thr Arg Lys Glu Glu Cys
20

<210> 58

<211> 53

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 58

Cys Thr Trp Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg
1 5 10 15

Lys Glu Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu
20 25 30

Pro Val Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg
35 40 45

Val Thr His Pro His
50

<210> 59
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 59
Lys Thr Lys Gly Ser Gly Phe Phe Val Phe
1 5 10

<210> 60
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<220>
<221> MOD_RES
<222> (4)
<223> S, T

<220>
<221> MOD_RES
<222> (7)
<223> K, R

<220>
<221> MOD_RES
<222> (8)
<223> G, T

<220>
<221> MOD_RES
<222> (12)
<223> H, T

<220>
<221> MOD_RES
<222> (13)
<223> K, R

<220>
<221> MOD_RES
<222> (16)
<223> G, T

<400> 60

Ile Ser Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu Xaa
1 5 10 15

Ile Leu Phe

<210> 61
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 61
Leu Ser Glu Ile Lys Gly Val Ile Val His Arg Leu Glu Gly Val
1 5 10 15

<210> 62
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 62
Gly Ile Leu Glu Ser Arg Gly Ile Lys Ala Arg Ile Thr His Val Asp
1 5 10 15

Thr Glu Ser Tyr
20

<210> 63
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 63
Lys Lys Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu
1 5 10 15

Leu

<210> 64
<211> 22
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 64

Lys Lys Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys
1 5 10 15

Val Ser Ala Ser His Leu
20

<210> 65

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 65

Lys Lys Leu Arg Arg Leu Leu Tyr Met Ile Tyr Met Ser Gly Leu Ala
1 5 10 15

Val Arg Val His Val Ser Lys Glu Glu Gln Tyr Tyr Asp Tyr
20 25 30

<210> 66

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 66

Tyr Asp Pro Asn Tyr Leu Arg Thr Asp Ser Asp Lys Asp Arg Phe Leu
1 5 10 15

Gln Thr Met Val Lys Leu Phe Asn Arg Ile Lys
20 25

<210> 67

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 67

Gly Ala Tyr Ala Arg Cys Pro Asn Gly Thr Arg Ala Leu Thr Val Ala
1 5 10 15

Glu Leu Arg Gly Asn Ala Glu Leu
20

<210> 68

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 68

Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp
1 5 10 15

<210> 69

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 69

Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro
1 5 10 15

Asn Ala Pro Ile Leu
20

<210> 70

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 70

Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser Ala
1 5 10 15

Leu Tyr Arg Glu
20

<210> 71

<211> 20

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 71
Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu
1 5 10 15
Met Thr Leu Ala
20

<210> 72
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 72
Trp Val Arg Asp Ile Ile Asp Asp Phe Thr Asn Glu Ser Ser Gln Lys
1 5 10 15
Thr

<210> 73
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 73
Arg Ala Gly Arg Ala Ile Leu His Ile Pro Thr Arg Ile Arg Gln Gly
1 5 10 15
Leu Glu Arg

<210> 74
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 74
 Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu Val Leu Gln Arg Ala
 1 5 10 15
 Gly Arg Ala Ile Leu
 20

<210> 75
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 75
 Ala Leu Asn Ile Trp Asp Arg Phe Asp Val Phe Ser Thr Leu Gly Ala
 1 5 10 15
 Thr Ser Gly Tyr Leu Lys Gly Asn Ser
 20 25

<210> 76
 <211> 22
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 76
 Asp Ser Glu Thr Ala Asp Asn Leu Glu Lys Thr Val Ala Ala Leu Ser
 1 5 10 15
 Ile Leu Pro Gly His Gly
 20

<210> 77
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide
 synthesized from amino acids with no genetic
 material as source

<400> 77
 Glu Glu Ile Val Ala Gln Ser Ile Ala Leu Ser Ser Leu Met Val Ala
 1 5 10 15
 Gln Ala Ile Pro Leu Val Gly Glu Leu Val Asp Ile Gly Phe Ala Ala
 20 25 30

Thr Asn Phe Val Glu Ser Cys
35

<210> 78
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 78
Asp Ile Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe
1 5 10 15

Asn Val Val Asn Ser
20

<210> 79
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 79
Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp Glu Lys Ile Arg
1 5 10 15

Ile

<210> 80
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 80
Gly Leu Gln Gly Lys Ile Ala Asp Ala Val Lys Ala Lys Gly
1 5 10

<210> 81
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 81

Gly Leu Ala Ala Gly Leu Val Gly Met Ala Ala Asp Ala Met Val Glu
1 5 10 15

Asp Val Asn

<210> 82

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 82

Ser Thr Glu Thr Gly Asn Gln His His Tyr Gln Thr Arg Val Val Ser
1 5 10 15

Asn Ala Asn Lys
20

<210> 83

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 83

Cys Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Cys
1 5 10 15

<210> 84

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 84

Cys Gly Glu Thr Tyr Lys Ser Thr Val Ser His Pro Asp Leu Pro Arg
1 5 10 15

Glu Val Val Arg Ser Ile Ala Lys Cys

<210> 85
 <211> 60
 <212> PRT
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<220>
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<220>
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 <223> K, R

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 <223> G, T

<400> 85
 Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Gly Gly Ile Ser
 1 5 10 15
 Ile Xaa Glu Ile Xaa Xaa Val Ile Val Xaa Xaa Ile Glu Xaa Ile Leu
 20 25 30
 Phe Gly Gly Cys Gly Gly Thr Tyr Gln Ser Arg Val Thr His Pro His
 35 40 45
 Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Cys
 50 55 60

<210> 86
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 86

Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp Glu Lys Ile Arg
1 5 10 15

Ile

<210> 87

<211> 62

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 87

Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp Glu Lys Ile Arg
1 5 10 15

Ile Lys Lys Lys Lys Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile
20 25 30

Thr Thr Ile Asp Lys Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His
35 40 45

Pro His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys Cys
50 55 60

<210> 88

<211> 57

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 88

Thr Ile Asn Lys Pro Lys Gly Tyr Val Gly Lys Glu Lys Lys Lys Lys
1 5 10 15

Ile Ile Thr Ile Thr Arg Ile Ile Thr Ile Ile Thr Tyr Ile Asp Lys
20 25 30

Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His Pro His Leu Pro Lys
35 40 45

Asp Ile Val Arg Ser Ile Ala Lys Cys
50 55

<210> 89
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 89
Ile Ser Leu Thr Glu Ile Arg Thr Val Ile Val Thr Arg Leu Glu Thr
1 5 10 15

Val Leu Phe

<210> 90
<211> 45
<212> PRT
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<220>
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synthesized from amino acids with no genetic
material as source

<400> 90
Ile Ser Leu Thr Glu Ile Arg Thr Val Ile Val Thr Arg Leu Glu Thr
1 5 10 15

Val Leu Phe Lys Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr His Pro
20 25 30

His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys Cys
35 40 45

<210> 91
<211> 63
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide
synthesized from amino acids with no genetic
material as source

<400> 91
Lys Trp Phe Lys Thr Asn Ala Pro Asn Gly Val Asp Glu Lys Ile Arg
1 5 10 15

Ile Lys Ile Ser Leu Thr Glu Ile Arg Thr Val Ile Val Thr Arg Leu
20 25 30

Glu Thr Val Leu Phe Lys Cys Gly Glu Thr Tyr Tyr Ser Arg Val Thr
35 40 45

His Pro His Leu Pro Lys Asp Ile Val Arg Ser Ile Ala Lys Cys

50

55

60